REMARKS AND RESPONSES

The Examiner is thanked for the thorough examination of the present application. In response, Applicants submit the foregoing amendments and the following remarks. Upon entry of the foregoing amendments, claims 10 and 23 remain pending in the application.

Amendments to the Claims

Claims 10 and 23 have been amended. Support for these amendments can be found in the originally filed specification and drawings. For example, paragraph [0027]:

> [0027] The circuit board 100 comprises a circuit region 102 and a heat-dissipative film 106, wherein the heat-dissipative film 106 is located on the edge of the circuit board 100. The circuit region 102 includes circuits, semiconductor devices, integrated circuits and related components for driving the motor connected to the circuit board. Some of the components, such as **the integrated circuit and semiconductor devices**, can be grouped into a heat-generating component 104.

(Emphasis added)

Moreover, paragraph [0036] also states:

> [0036] Furthermore, in order to enhance the efficiency in heat dissipation of the circuit board 500, a cutout 114 is formed through the protrusion 110 of a circuit board 600 as shown in FIG. 7 to extend over the length of the heat-generating component 104. In this case, a portion of the heat-generating component 104 is exposed to the air passage via the cutout 114. Therefore, according to this embodiment, the heat-generating component 104 is almost entirely exposed to the air passage, thus the heat-generating

> component 104 has a greater contact area with the airflow. Hence, the heat generated by the heat-generating component 104 is readily dispersed by the air flowing past the protrusion 110. Therefore, it is possible not only for the circuit board 600 to have an enhanced efficiency in heat dissipation and therefore an increased operable current range of the electronic components mounted thereon, but also for the fan structure 200 provided with the circuit board 600 to have a prolonged lifetime.

(Emphasis added)

Therefore, it is clear that the amendments to claims 10 and 23 do not introduce any new matter. Entry of these amendments is respectfully requested.

Claim Rejection - 35 U.S.C. §102

Claims 10 and 21-25 were rejected under 35 U.S.C. §102(b) as being anticipated by Takahashi (U.S. Patent No. 5,343,104).

In view of the amendments made to the independent claims herein and the following additional distinguishing remarks, Applicants respectfully request reconsideration of the rejections for at least the reasons that follow.

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of Californi*a, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). ..."The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

(*Emphasis added*, MPEP §2131 – **"TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM"**)

Of the rejected claims, only claims 10 and 23 are independent, and these claims recite:

> Claim 10: A fan structure comprising a hub, a motor located inside the hub, a plurality of fan blades connected to the hub, and a circuit board connected to the motor, wherein the circuit board comprises a protrusion extending outside the circumference of the hub, and the protrusion carries thereon a heat-generating component and comprises a cutout that extends from a tip of the protrusion to the heat-generating component, and the heat-generating component comprises at least one integrated circuit or semiconductor device, so that **heat generated by the heat-generating component is dispersed by an air flow flowing past the protrusion**.
>
> Claim 23: A circuit board for operating a fan, the circuit board comprising:
>
> a protrusion extending outside the circumference of the hub of the fan and carrying thereon a heat-generating component;
>
> wherein the protrusion comprises a cutout that extends from a tip of the protrusion to the heat-generating component, wherein the heat-generating component comprises at least one integrated circuit or semiconductor device, so that **heat generated by the heat-generating component is dispersed by an air flow flowing past the protrusion**.

(*Emphasis added*) Claims 10 and 23 patentably define Applicants' devices over the cited art for at least the reason that the cited art fails to disclose at least the features emphasized above.

In this regard, the Office Action stated "…Takahashi teaches…a heat-generating component (229; note that a thermistor is a heat generating component since it is a resistor;…)" Applicants disagree. In fact, the

thermistor 229 disclosed by Takahashi is not the same as the claimed heat-generating component comprising at least one integrated circuit or semiconductor device. The thermistor in Takahashi is not an integrated circuit or semiconductor device.

As confirmed by Figs. 15 and 16 of Takahashi and the related specification text, Takahashi does not provide any relevant teaching about the thermistor 229 can or can not generate heat. On the other hand, Takahashi teaches the heat-generating component should not be located on the mounting portion 228. This is confirmed throughout the specification. For example, col. 8, lines 31-55 states:

> For the purpose of temperature detection, the printed circuit board 224 has, as its integral part, a mounting portion 228 which extends radially outward as shown in FIG. 15, and a chip thermistor 229 is directly connected to trace lands 230, 230 on the mounting portion 228. The mounting portion 228 is provided with a hole 231 to assure that the thermistor 229 is directly exposed to circulating air. This allows the thermistor 229 to accurately detect the temperature of the delivered air. Since the mounting portion 228 extends radially outward, the thermistor 229 on it is little affected by heat generated by circuit components such as ICs and resistors on the printed circuit board 224. Thus, temperature detection error introduced by disturbing heat is minimal, and thus the thermistor 229 detects the temperature of the atmosphere as desired with sufficient accuracy. Furthermore, compared to a thermistor with leads which may need manual soldering to a printed circuit board, the chip thermistor 229 may be easily subjected to automated mounting along with other chip components on the printed circuit board 224.
>
> FIG. 16 shows a variation of the printed circuit board 224. The mounting portion 228 of the printed circuit board 224 is provided with a U-shaped cutaway 232. The thermistor 229

is installed over the cutaway 232.

Therefore, it is clear that the thermistor 229 in Takahashi should not be a heat-generating component, or at least the heat generated by the thermistor 229 should not be dispersed by an air flow flowing past the mounting portion 228. Otherwise, the heat generated by the thermistor 229 would interfere with the result of the temperature detection.

In view of the foregoing remarks, it is respectfully submitted that the prior art reference utilized by the Office Action fails to teach the claimed heat-generating component of independent claims 10 and 23. Accordingly, reconsideration and withdrawal of this portion of the 35 U.S.C. §102 rejections are respectfully requested.

Conclusions

For all of the above reasons, applicants submit that the specification and claims are now in proper form, and that the claims patatentably define Applicants' devices over the prior art. Therefore applicants respectfully request allowance for this application at the Examiner's earliest convenience.

Respectfully submitted,

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/Chao-Chang David Pai/

Chao-Chang David Pai
Attorney (Reg. #51,195)
PAI PATENT & TRADEMARK LAW FIRM
1001 4th Avenue, Suite 3200
Seattle, WA 98154
(Tel) 206-372-3162
(Fax) 206-374-2899